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<https://doi.org/10.1007/s12208-020-00249-0>

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# International Review on Public and Nonprofit Marketing

## Can a multi-criteria methodology fit with non-profit institutions' decision-making? An application in a Spanish non-profit association --Manuscript Draft--

<b>Manuscript Number:</b>	IRPN-D-19-00108
<b>Full Title:</b>	Can a multi-criteria methodology fit with non-profit institutions' decision-making? An application in a Spanish non-profit association
<b>Article Type:</b>	Original research article
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<b>Abstract:</b>	<p>The 2007 crisis occurred in Spain while the Social Economy was undergoing a process of development and transformation to meet growing demand. The new stage uncovered organizational inefficiency in the Social Economy's institutions that might put at risk their survival and highlighted new challenges that these organizations had to face. It was necessary to move towards a strategic model that would allow them to respond more swiftly and effectively to external shocks without renouncing the values and principles of the Social Economy. This paper analyzes the effects of the 2007 crisis on the institutions of the Spanish non-profit sector and suggests a methodology to help them decide between different affordable future strategies. We use the ELECTRE II, a multi-criteria decision-making methodology to carry out a case study focused on a non-profit association, whose main goal is to take care of disabled people. We show how to help the association make decisions in an efficient, rigorous and democratic way.</p>

## **Can a multi-criteria methodology fit with non-profit institutions' decision-making? An application in a Spanish non-profit association**

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### **Abstract**

The 2007 crisis occurred in Spain while the Social Economy was undergoing a process of development and transformation to meet growing demand. The new stage uncovered organizational inefficiency in the Social Economy's institutions that might put at risk their survival and highlighted new challenges that these organizations had to face. It was necessary to move towards a strategic model that would allow them to respond more swiftly and effectively to external shocks without renouncing the values and principles of the Social Economy. This paper analyzes the effects of the 2007 crisis on the institutions of the Spanish non-profit sector and suggests a methodology to help them decide between different affordable future strategies. We use a multi-criteria decision-making methodology to carry out a case study focused on a non-profit association, whose main goal is to take care of disabled people. We show how to help the association make decisions in an efficient, rigorous and democratic way.

**Key word:** Social Economy, non-profit institutions, multi-criteria, ELECTRE methodology, decision making

**JEL:** D22, L31, O52

# Can a multi-criteria methodology fit with non-profit institutions' decision-making? An application in a Spanish non-profit association

## Abstract

The 2007 crisis occurred in Spain while the Social Economy was undergoing a process of development and transformation to meet growing demand. The new stage uncovered organizational inefficiency in the Social Economy's institutions that might put at risk their survival and highlighted new challenges that these organizations had to face. It was necessary to move towards a strategic model that would allow them to respond more swiftly and effectively to external shocks without renouncing the values and principles of the Social Economy. This paper analyzes the effects of the 2007 crisis on the institutions of the Spanish non-profit sector and suggests a methodology to help them decide between different affordable future strategies. We use a multi-criteria decision-making methodology to carry out a case study focused on a non-profit association, whose main goal is to take care of disabled people. We show how to help the association make decisions in an efficient, rigorous and democratic way.

**Key word:** Social Economy, non-profit institutions, multi-criteria, ELECTRE methodology, decision making

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## 1. Introduction

In the years before the great recession of 2007, Spanish economic growth and the enlargement of the public budget created a large increase in the service sector and welfare state. This economic model was based on privatization and the hegemony of private companies. However, institutions in the Social Economy, the main goal of which is not to maximize profits, were also increasing. The Social Economy gathers those initiatives that are more interested in community profit than economic profit: it is a third sector, located between the public and private sector, that is essential to achieve more balanced and fair development from the social and economic points of view (Castells, 2017).

The expansion of the Social Economy has enlarged both its complexity and its academic and scientific interest. The plurality of companies, institutions, and entities that have been established, as well as the plurality of needs, problems, and social demands considered, have led to the proliferation of a large number of terms related to the Social Economy: The Solidarity Economy, Collaborative Economy, Economy for the Common Good, Third Sector, and Circular Economy, to highlight the primary terms. While it is true

that there are important similarities among these terms, it is also true that there are significant differences, so it is necessary that any study should clearly define where the focus of the analysis would lie.<sup>1</sup>

Our study adopts a definition of Social Economy that is widely accepted and fits in with the European System of Integrated Economic Accounts (ESA, 2010):

“The set of private, formally-organized enterprises, with autonomy of decision and freedom of membership, created to meet their members’ needs through the market by producing goods and providing services, insurance and finance, where decision-making and any distribution of profits or surpluses among the members are not directly linked to the capital or fees contributed by each member, each of whom has one vote, or at all events take place through democratic and participative decision-making processes. The Social Economy also includes private, formally-organized organizations with autonomy of decision and freedom of membership that produce non-market services for households and whose surpluses, if any, cannot be appropriated by the economic agents that create, control or finance them.” (Chaves & Monzón, 2018, 13)

This definition allows the identification of the following two subsectors of the Social Economy:

1. The *market or corporate subsector* is integrated by companies under a democratic organizational structure, where the profit distribution does not link with the partners’ capital investment. These organizations are created to satisfy their partners’ needs and are market producers, which means that their output is mainly intended for sale on the market at economically significant prices. The surpluses can be distributed among their user members, although not in proportion to the capital or the fees provided by the members, but according to the member’s transactions with the organization.
2. The *non-market subsector* is integrated by private formally organized non-profit institutions serving households. It also includes private entities—mainly associations and foundations—serving families and households and can trade on the market at economically non-significant prices. Such organizations seek to promote the recognition and exercise of social rights and to achieve cohesion and active social inclusion of people in all their dimensions. Particular support is given by these entities to those people and social groups

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<sup>1</sup> This study does not aim to deepen the current debate in the literature on the threshold of the different concepts. The following studies may, however, be of interest: Chaves & Monzón, 2018; Monzón, 2006; Monzón & Chaves, 2016; Salamon & Sokolowski, 2016.

1 that are in a more vulnerable situation or at risk of social exclusion. Their main sources of resources are  
2 donations, partners' dues and subventions. The surpluses, if there are any, cannot be appropriated by the  
3 institution members (Fundación Luís Vives, 2012; Monzón & Chaves, 2016).  
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7 In terms of this established definition of the Social Economy and its two subsectors, this study deals with  
8 the non-market subsector (NMS) and, concretely, with the Spanish NMS.  
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11 The effects of the 2007 economic downturn hit at the core of the Social Economy because it had an impact  
12 on financial and human resources and on the volume and typology of social demands (Jaén, 2017). The  
13 crisis occurred in Spain while the Social Economy was undergoing a process of development and  
14 transformation to meet growing demand. The new stage uncovered organizational inefficiency in the Social  
15 Economy's institutions that might put at risk their survival and highlighted new challenges that these  
16 organizations had to face. This paper analyzes the effects of the 2007 crisis on the institutions of the Spanish  
17 NMS and suggests a methodology to help them decide between different affordable future strategies in an  
18 efficient, rigorous, and democratic way.  
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31 We used the ELECTRE II (Elimination and Choice Expressing Reality) methodology, which is a multi-  
32 criteria methodology that evaluates multiple conflicting criteria in decision-making. ELECTRE II allows  
33 the ranking of different alternatives according to stakeholder preferences and measurable performance  
34 criteria. It is a widely used decision-making methodology, and in this paper we will show how it could be  
35 used to help make decisions in the non-profit association, AdP, whose main goal is to take care of disabled  
36 people.  
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46 The study has interest because the future of institutions in the Social Economy requires making decisions  
47 to move towards a strategic model that would allow them to respond more swiftly and effectively to external  
48 shocks without renouncing the values and principles of the Social Economy. Our work provides an efficient  
49 methodology for assisting the decision-making process and furthermore, shows how to implement this  
50 methodology in a real situation.  
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This article addresses the following questions:

**Question 1:** How did the 2007 crisis affect NMS institutions?

**Question 2:** What kind of rigorous methodology, linked to decision-making, can help these institutions implement a new strategic organizational model?

**Question 3:** To what extent can ELECTRE II be successfully implemented in the decision-making processes of NMS institutions?

## **2. The Spanish non-profit subsector in a crisis framework<sup>2</sup>**

The 2007 international financial crisis, the successive increase of the European Central Bank's interest rate from the end of 2005 to mid-2007, and the depletion of the real estate market expansion cycle were the main factors that moderated the Spanish rate of growth. In mid-2007, the Spanish economy had entered a phase of deceleration, and by the end of 2008 the economy had already entered a phase of negative growth (see **Figure 1**). As of 2009, the mistrust, failing banks, and their vulnerability caused a credit crunch. The government responded to this contraction stage by applying an expansionary fiscal policy. The bet was not successful and the 2% of surplus in 2007 became an 11% deficit in 2009.

[Figure 1 here]

In early 2010, the contraction of the Spanish GDP decreased as a result of the upturn in the global economy. However, the financial distress in European markets and the unsolved Spanish imbalances disrupted the framework of economic growth. In line with the rest of EU, Spanish fiscal policy changed from expansionary to contractionary to cut the deficit as a first step on the path to new, stable growth.

The crisis hit the Spanish labor market strongly and exacerbated the structural problems that had hampered its performance. At the beginning of 2008, the unemployment rate started to increase, resulting in an

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<sup>2</sup> The NMS data included in this section do not include businesses, professional and sports associations, churches, or trade unions and political parties.

unemployment rate of 23% at the end of 2011 and of 26% at the end of 2013. The most vulnerable groups were young people, immigrants, and the disabled and low skilled workers.

The crisis affected the NMS in different ways. While the financial and credit perspective provided a clear long-run objective in the private sector, it should be considered a constraint rather than an objective in non-profit organizations (Grigoroudis, Orfanoudaki, & Zopounidis, 2012; Kaplan, 2001). We would like to point out that the NMS suffered greater financial instability during the recession than the private sector (Salamon, Geller, & Spence, 2009). The credit crunch tightened the access to lines of credit and personal or mortgage loans (**Figure 2**). These are important financial resources for solving liquidity problems or for financing programs that are executed before the payment of the public funds (Galindo, Rubio, & Sosvilla, 2014). The low ratings also affected their guarantees and were basically linked to pre-approval of future collection of public funds.

**[Figure 2 here]**

Public funding withstood the first shock of the crisis thanks to budgetary inertia and the multi-year nature of many European fund programs. The inflection occurred in 2012, when budget cuts led to the cancellation of grants and programs; the merger of programs; late payments; the reduction, cancellation or absence of subsidies; and public calls without resolution and public calls with resolution but without charge. Public funds fell by 5 points between 2010 and 2013 (**Figure 3**). Private financing also fell (1.2 points). The social work of savings banks, which are the main source of private financing, lost 7.6 points between 2010 and 2013, and the decline was motivated by bank restructuring in the first years of the crisis. Own funds still showed a progressive increase (3.5 points), thanks to user fees and/or collaborating entities whose weight grew by 9.7 points between 2010 and 2013 (Plataforma ONG de Acción Social; Plataforma de Tercer Sector and eeaGrant, 2015).

**[Figure 3 here]**



1 With regard to the labor market, the crisis increased the discrimination of collectives more vulnerable or at  
2 risk of social exclusion.<sup>3</sup> The cut in social policies—especially in policies aimed at the social and labor  
3 welfare of vulnerable groups—had consequences for the ability to find employment and in working  
4 conditions (Caro, 2017; Vidal, 2013). The effects on employment in the NMS were not as devastating as  
5 those on the Spanish economy as a whole. During the period 2010–2013, data show an estimated loss higher  
6 than 27 thousand jobs.<sup>4</sup> However, the share of the NMS in Spanish total employment continued to increase  
7 (4.1% in 2010 and 4.6% in 2013). The percentage of entities with paid workers did, however, decrease,  
8 falling from 86% to 78.5% between 2010 and 2013, as did the share of large entities with more than 20  
9 workers, which in 2013 had fallen to 28.1% from 41.2% in 2010. Both the proportion of entities that hired  
10 paid workers and those with the largest number of employees decreased from 2010 to 2013 (Plataforma  
11 ONG de Acción Social; Plataforma de Tercer Sector and eeaGrant, 2015; PricewaterhouseCoopers,  
12 ESADE, & Obra Social “La Caixa,” 2013).

13  
14 Overall, employment in the NMS withstood the crisis better than the Spanish economy as a whole. The  
15 crisis did, however, sharpen poverty and social exclusion in sectors that previously had not suffered from  
16 them, increasing basic social demand for basic goods such as food. This meant that in 2013, despite  
17 decreasing financial resources and cuts in social policies, direct care was almost 30% higher than in 2008.  
18 The growth in volunteer figures during this period—by more than 18% between 2010 and 2013—and the  
19 fall in employment suggest that the formula chosen to meet this growing social demand was to replace paid  
20 work with volunteering (Plataforma ONG de Acción Social; Plataforma de Tercer Sector and eeaGrant,  
21 2015; Plataforma ONG de Acción Social, 2017).

22  
23 There is no doubt that the future of the NMS institutions required confronting challenges, including internal  
24 reorganizations and greater optimization of resources. These institutions needed to develop specific and  
25 efficient strategies to avoid being overtaken by reality and to continue fulfilling their goals and objectives.

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27 <sup>3</sup> In 2009 disabilities people unemployment rate doubled that of the people without disabilities and had been  
28 increasing since mid-2007. As in other collectives, the crisis increased the labor supply of the disabled  
29 people due to the rise in the number of families with all their members unemployed (Fernández, 2016;  
30 Huete, Sola, Lara, & Díaz, 2009).

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32 <sup>4</sup> We have not included employment data from the Spanish Red Cross, ONCE, and Caritas due to their  
33 relatively high weight. If these were included, it would appear that employment had increased by more than  
34 nine thousand people (Plataforma ONG de Acción Social; Plataforma de Tercer Sector and eeaGrant. 2015).

The entities themselves recognized that the sector had to adapt to the “real needs of society,” “new profiles and demands,” and the “new reality before the private company” (Fundación Luís Vives, 2012). The crisis showed that, in spite of the resilience of these entities, they had to develop a more flexible organizational strategic model to respond more swiftly and effectively to external shocks without renouncing the values and principles of the Social Economy. It was therefore necessary to make decisions that implied changes in management and the organizational and quality systems. For this reason, we believe that the application of the methodology proposed in the following sections will help in these decision-making processes.

### 3. Multi-criteria methodology: ELECTRE II

Multi-criteria decision-making (MDM) is a decision methodology that can help to increase the quality of decisions by making the process more explicit, rigorous, rational, and efficient (Wang & Triantaphyllou, 2008). MDM integrates criteria to evaluate alternative decisions by scoring them according to stakeholder preferences and measurable performance data (Stoycheva et al., 2018). There are many MDM models to analyze and rank the alternatives. One such model, known as “outranking relations,” includes the ELECTRE method. ELECTRE’s origins go back in the mid-1960s and the European consultancy company (SEMA). At that time, Bernat Roy, who is widely recognized as the father of ELECTRE, and his colleagues worked on a concrete multi-criteria problem that dealt with the development of new activities in firms. Within the family of ELECTRE models, ELECTRE I was the one that was implemented first.<sup>5</sup> Scholars improved ELECTRE I with the development of ELECTRE II (Roy & Bertier, 1971, 1973), which is widely used when a final ranking of alternatives is needed by an analyst.

ELECTRE II fits with the goal of this study to analyze the best alternatives for implementing transformations and new strategies that would allow NMS entities to confront the future and, at the same time, to maintain the Social Economy philosophy. It is important to point out that the decision makers (DM) have to have access to full information and thoroughly understand the different available alternatives and criteria used to establish the outranking relationship, otherwise the ELECTRE evaluation method could produce results opposite to those desired (Wen-Chih, 2005).

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<sup>5</sup> A literature review on ELECTRE and ELECTRE-based methods is included in Govindan & Jepsen (2016).

The ELECTRE II method is developed according to the following four steps:

**Step 1.** Select the  $n$  alternatives ( $A$ ), that the DM want to rank according to different criteria that may be in conflict.

$$A = \{A_i | i = 1, 2, \dots, n\}$$

**Step 2.** Select the  $m$  criteria ( $C$ ), that the DM want to evaluate to carry out the ranking of the alternatives.

$$C = \{C_j | j = 1, 2, \dots, m\}$$

**Step 3.** Determine the relative weights ( $W$ ) of the  $m$  criteria.

$$W = \{W_j | j = 1, 2, \dots, m\} \text{ and } \sum_{j=1}^m W_j = 1$$

**Step 4.** Apply the ELECTRE multi-criteria evaluation method. ELECTRE II is based on the evaluation of two indices—the concordance index and the discordance index—defined for each pair of alternatives— $(A_r)$  and  $(A_k)$ . The concordance index measures the strength of the hypothesis that alternative  $(A_r)$  is at least as good as alternative  $(A_k)$ . The discordance index measures the strength of the possibility that this hypothesis is not true. To establish both indices, the following points are needed. We define the decision matrix, that is, the performance of the alternative  $(A_i)$  in terms of the criteria  $(C_j)$  as:

	$C_1$	$C_2$	...	...	$C_m$
$A_1$	$A_{11}$	$A_{12}$	...	...	$A_{1m}$
$A_2$	$A_{21}$	$A_{22}$	...	...	$A_{2m}$
...	...	...	...	...	...
...	...	...	...	...	...
$A_n$	$A_{n1}$	$A_{n2}$	...	...	$A_{nm}$

The decision matrix is normalized following min-max normalization. The normalized value of feasible alternative  $(A_i)$  under criterion  $(C_j)$  is represented by  $g_j(A_i)$ .

If the criterion should be minimized:

$$g_j(A_i) = \frac{\max A_{ij} - A_{ij}}{\max A_{ij} - \min A_{ij}}$$

If the criterion should be maximized:

$$g_j(A_i) = \frac{A_{ij} - \min A_{ij}}{\max A_{ij} - \min A_{ij}}$$

$$i = 1, 2, \dots, n \quad j = 1, 2, \dots, m$$

Next, the criteria are classified into three categories:

$$C^+(r, k) = \{C_j | g_j(A_r) > g_j(A_k)\}$$

$$C^=(r, k) = \{C_j | g_j(A_r) = g_j(A_k)\}$$

$$C^-(r, k) = \{C_j | g_j(A_r) < g_j(A_k)\}$$

The sum of weights for which  $A_r$  is better (more preferable) than  $A_k$  is:

$$W^+(r, k) = \sum_{j \in C^+(r, k)} W_j$$

The sum of weights for which  $(A_r)$  is indifferent to  $(A_k)$  is:

$$W^=(r, k) = \sum_{j \in C^=(r, k)} W_j$$

The sum of weights for which  $(A_r)$  is worse than  $(A_k)$  is:

$$W^-(r, k) = \sum_{j \in C^-(r, k)} W_j$$

That is:

$$W^+(r, k) + W^=(r, k) + W^-(r, k) = \sum_{j=1}^m W_j = 1$$

We can then establish the concordance and discordance indices.

Concordance index

$$c(r, k) = \frac{W^+(r, k) + \frac{1}{2}W^=(r, k)}{W^+(r, k) + W^=(r, k) + W^-(r, k)}$$

Discordance index

$$d(r, k) = \frac{\max_{j: g_j(A_r) < g_j(A_k)} |g_j(A_r) - g_j(A_k)|}{\max_j |g_j(A_r) - g_j(A_k)|}$$

At this point we need to define the ranking procedure. We work with TOPSIS index developed by Hwang and Yoon (1981), which is based on the concept that the chosen alternative should have the shortest distance from the ideal solution and the farthest from the anti-ideal solution. We first choose the largest value both in the concordance matrix ( $c^*$ ) and in the discordance matrix ( $d^*$ ), then we define the concordance dominance matrix and the discordance dominance matrix, the elements of which are, respectively:

$$c'_{rk} = c^* - c_{rk} \quad d'_{rk} = d^* - d_{rk}$$

We determine the aggregate dominance matrix, the elements of which are:

$$a_{rk} = \frac{d'_{rk}}{c'_{rk} + d'_{rk}}$$

From the aggregate dominance matrix, we calculate the mix evaluation value of each alternative, as follows:

$$\bar{a}_r = \frac{1}{n-1} \sum_{k=1, k \neq r}^n a_{rk} \quad r = 1, 2, \dots, n$$

The alternatives are ranked according to the increasing order of  $\bar{a}_r$ . The best alternative is  $A^* = \max \bar{a}_r$ .

We also apply an alternative ranking procedure to analyze the sensitivity of the ranking to the methodology used. In this sensitivity analysis, we define the average values of the concordance and discordance matrices  $(\bar{c}, \bar{d})$  as the acceptable values for the concordance and discordance threshold. We define the concordance/discordance dominance matrix according to the following rules:

- Concordance: if the concordance matrix element  $c_{rk} \geq \bar{c}$  the concordance dominance matrix element  $c'_{rk} = 1$ , otherwise  $c'_{rk} = 0$
- Discordance: if the discordance matrix element  $d_{rk} \leq \bar{d}$  the discordance dominance matrix element  $d'_{rk} = 1$ , otherwise  $d'_{rk} = 0$

The aggregate dominance matrix is obtained by multiplying every element of the concordance dominance matrix by the discordance dominance matrix:

$$a_{rk} = (c'_{rk} * d'_{rk})$$

We then build the new ranking from the “best” alternative, defined as that which is not outranked by others (sum of the column in the aggregate dominance matrix = 0), to the “worst,” defined as that which shows the greatest number of alternatives that outrank it, (the maximum value of the sum of the columns in the aggregate dominance matrix). The best alternative of this ranking should coincide with that of the TOPSIS test to guarantee the robustness of our results.

#### 4. Application of ELECTRE II

The institution for which we implemented the multi-criteria measurement system is a non-profit association called AdP. The main goal of AdP is to take care of disabled people. The organizational DNA is defined by its willingness to accompany disabled people throughout their lives. It is important highlight that the institution carries out entrepreneurial activities and services.

The areas where AdP provides services to people and families and develops activities are shown in Diagram 1 and include the following:

- Health
- Housing
- Food
- Employment (Special Employment Center, SEC)
- Education and rehabilitation/therapy
- Training and placement
- Leisure and spare time

The two areas of Food and Leisure and spare time are the primary focal points of entrepreneurial services and activities, while the remaining areas are mainly focused on Social Economy services and activities.

**[Diagram 1 here]**

The 2007 crisis hit AdP action areas as described section two. To achieve long-term viability and sustainable development, the institution sought for an equilibrium between effective performance and the institution's vision. To maintain this equilibrium, the management team decided to establish a new, more flexible development model, with a greater adaptability and that would allow more agility in the decision-making process.

The management team considered that the future development model should focus on a strategy reached after a participative process. The different actors involved—including caregivers, workers, users, families, and the management team—would have to have the opportunity to engage in the process.

Prior to the application of ELECTRE II, important and laborious preparatory work was necessary. To carry this out, three work groups (WG)—in addition to the DM—were created. The DM was integrated with eight individuals: two representatives of the board of trustees, two from the board of directors, two from the management team, one representative of the service areas, and the head of the economic and financing area. With respect to the WG, a WG was created for each of the following three stakeholder groups: workers, families and users, and common and service areas. Each WG was composed of ten representatives. The working process followed by the DM and the WG is synthesized in Diagram 2 and is explained in more detail below.

[Diagram 2 here]

1. The first step—the definition of the strategies (alternatives in ELECTRE language) and criteria—was completed by the DM, using the discussion group technique because it allowed cooperative work in an open and flexible scenario. They sought to generate a process of feedback among the participants that would lead them to assume responsibility as a group. The technique was appropriate because it gave prominence to the group. A moderator directed the conversation by opening dialogue and agreement spaces, but was not the engine of the debate.

This phase was essential because the information generated was absolutely necessary for carrying out the subsequent stages. It is worth noting that behind each alternative there was a wide strategic action plan that included, among other item, work lines, timing diagrams, environmental implications, and financial, economic and human resources. During this phase, the different criteria that should be maximized or minimized, as well as how to quantify them, were also established. The criteria laid down by the DM were the result of its qualitative evaluation of the future of AdP, so a previously established scale was necessary to quantify them. In this situation, a group could be compared by evaluating the level of its members' similarity–dissimilarity (Rogers, Bruen, & Maystre, 2000) or by establishing an ordinal scale (Maystre & Bollinger, 1999). In the case of AdP, an ordinal scale was established, with a quantification range from zero to five, where zero indicated no link between criterion and strategy, while five indicated that the strategy in question accentuated the criterion.

The extent of AdP reference territory—where the institution may wish to spread its activities and services—was also resolved during this phase. The territory decided upon included the counties of the Catalonia Autonomous Community within a maximum distance of 100 km from AdP headquarters.

The DM also agreed upon the criteria-specific weightings. Weight allocation of criteria is essential in the ELECTRE II process. Among several possible techniques (Simos, 1990), the “cards method” procedure revised by Figueira and Roy (2002) was chosen. This method is well adapted to ELECTRE II and helps stakeholders to think rigorously about how they wish to rank the different criteria in a given context.

2. Once the DM had established the alternatives, criteria, and weights, the WGs stepped in. All of the information associated with the work by the DM was made available to the WG members so they could prepare for the work sessions. It was hoped that each WG would use the information to construct its own decision matrix. This was done using the focus group technique, because the work to be developed required a more active role from the moderator in conducting the session in a more directive way, stimulating the group, and leading the group to achieve a decision matrix.

3. The DM assessed each WG's decision matrix and each criterion. If the scores awarded by the WGs showed fairly low dispersion, the final criterion score was the average. If the scores showed fairly great dispersion, the DM discussed which score would be the most suitable. Considering all of the information and the DM's knowledge of the association, if any of the final scores were thought unsuitable, the DM could discuss those scores and agree upon a different score.

4. Then all of the previous information was gathered to apply the ELECTRE II methodology and to reach the final decision.

The above working process allowed AdP to decide the future strategy of the organization in a democratic way. We present the results of the working process by following the four steps enumerated in section three.

**Step 1. Select the strategies (alternatives)** and rank them according to different criteria that may be in conflict ( $A_i$ ;  $i=1,2,\dots,n$ ). There were an important number of assumable strategies. The discussion process (Diagram 2), implied that the following eight strategies were the ones that were finally taken into consideration.

A1. To change the present institutional common services by giving more economic and financial autonomy to each institutional area, but preserving the common services, empowering entrepreneurial activities, and strengthening territorial growth.

A2. To change the current institutional common services by given more economic and financial autonomy to each institutional area, but preserving common services, empowering entrepreneurial activities, and taking an institutional policy of moderate territorial growth.



A3. To change the current institutional common services by given more economic and financial autonomy to each institutional area, unlinking the entrepreneurial activities of the institution, empowering the philosophy of the Social Economy, and strengthening territorial growth.

A4. To change the current institutional common services by given more economic and financial autonomy to each institutional area, unlinking the entrepreneurial activities of the institution, empowering the philosophy of Social Economy, and taking an institutional policy of moderate territorial growth.

A5. To maintain the present institutional common services, empower entrepreneurial activities, and enhance territorial growth.

A6. To maintain the institutional common services, empower entrepreneurial activities, and take an institutional policy of moderate territorial growth.

A7. To maintain the institutional common services, empower the philosophy of Social Economy, and enhance territorial growth.

A8. To maintain the present institutional common services, empower the philosophy of Social Economy, and take an institutional policy of moderate territorial growth.

**Step 2. Select the criteria** for ranking the alternatives ( $C_j$   $j=1,2,\dots,m$ ). Following the Balanced Scorecard (BSC) system, as a performance measurement system, strategy evaluation system, and communication tool (Grigoroudis et al., 2012), four criteria perspectives were defined:

1. Financial;
2. Users;
3. Internal institution;
4. Learning and growth.

Each criterion was clustered into the perspective in which it fit best.

Below, we expose the criteria and indicate if they would be maximized or minimized in the multi-criteria model.

#### *1. Financial perspective*

The financial criteria were designed to guarantee that AdP would be able to efficiently operate in the future, so the criteria were focused on the long-term viability of AdP.

C1. Debt ratio

The debt ratio was defined as the total debt over the total assets: that is, the proportion of the company's assets financed by debt (**Minimize**).

#### C2. Expenses in new ideas and projects/ total expenses

Behind each strategy there are new ideas and projects perfectly defined by the DM, and behind each new idea and project there are expenses. The DM's desire is to achieve success in every new idea and project included in every strategy. However, from a financial perspective, minimizing the weight of the expenses for new ideas and projects over total expenses must be the objective (**Minimize**).

#### C3. Liquidity ratio

The liquidity ratio expresses a company's ability to repay short-term creditors out of its total cash. It is defined as the ratio of total cash to short-term borrowings. It shows the number of times short-term liabilities are covered by cash (**Maximize**).

#### C4. Net profit margin

The net profit margin is the percentage of revenue left after all expenses have been deducted from sales. The measurement reveals the amount of profit that a business can extract from its total sales (**Maximize**).

#### C5. Dependency on public funds

Because AdP is an association included in the Social Economy NMS, their resources include public fund, especially subventions. As a Social Economy entity, AdP has a responsibility to look for public funds to improve the services it provides. However, the financial perspective involves trying to minimize the ratio of subventions to total budget to guarantee the association viability in the face of future economic downturns that are usually linked with public budgetary constraints (**Minimize**).

### 2. *User perspective*

From the user perspective, the criteria mainly refer to the quality of the association services and are linked to the main role of AdP: caring for disabled people.

#### C6. Number of disabled people cared for

Given the main goal of the association, it is desirable that it assist as many disabled people as possible (**Maximize**).

#### C7. Quantity of available social housing/disabled people cared for

Within its housing area, AdP has temporary or permanent residential home service for people with intellectual disabilities who require different types of support to develop an autonomous life, both in the home and in the community. Despite the difficulties of finding new residential buildings appropriate to the

association's needs, the intention is to improve the attention to and welfare of disabled people, so the desire is to increase this ratio (**Maximize**).

#### C8. Disabled people/care workers

AdP uses a person-centered methodology, where the planning and proceedings are defined taking into account the wishes and desires of the disabled people served. This methodology requires a significant number of professionals to lead the operating dynamics, so the desire is to reduce this ratio (**Minimize**).

#### C9. Training and employment placement services

The training and employment placement services sought to increase the inclusion of disabled people in the labor market to build a more inclusive, diverse, and tolerant society. The desire is to improve the ratio of expenses for training and employment services over total expenses (**Maximize**).

### *3. Internal institutional perspective*

This perspective wants to reflect the extent to which users, families, and workers feel like an integral and fundamental part of the association and feel that they are valued and their opinions considered.

#### C10. User satisfaction

Because AdP is an organization that works for the well-being of disabled people, this criterion must be maximized (**Maximize**).

#### C.11. Satisfaction of users' family

The families of disabled people are also a part of the association, so they also have to feel integrated and satisfied, therefore this criterion must be maximized (**Maximize**).

#### C.12. Employee satisfaction

A higher level of satisfaction in the workplace encourages well-done work and enhances employee commitment and loyalty, so this criterion should be maximized (**Maximize**).

### *4. Learning and growth*

Finally, the learning and growth perspective includes criteria primarily oriented to reach the best option for generating sustainable growth.

#### C.13. Social and environmental DNA

AdP wants to contribute to a sustainable development model. The AdP project incorporates and aims to further promote actions and measures to take care and be respectful of the environment, including: sustainable use of resources, energy saving, prevention of pollution, and management of consumption and

waste. For this criterion, the aim is to prioritize those alternative that supported greater social and environmental actions (**Maximize**).

#### C.14. Third-party collaboration

The association wants to advance collaboration, cooperation, and networking with the entities in the territory with which shares ideas and philosophical identification. For this criterion, the aim is prioritize to a greater degree those alternatives with a higher number of third-party collaborative actions (**Maximize**).

#### C.15. Suppliers of the Social Economy/total suppliers

It is essential to collaborate and seek common strategies among entities within the Social Economy to efficiently face common economic challenges (**Maximize**).

#### C.16. Number of volunteers committed

Citizen involvement in Social Economy entities should be promoted, so the volunteer network should be strengthened (**Maximize**).

**Step 3. Determine the relative weights** of the criteria ( $W_j; j = 1, 2, \dots, m$ ). The relative weights agreed upon by the DM are shown in Table 1.

[Table 1 here]

**Step 4. Apply the ELECTRE II multi-criteria evaluation method** to select the most suitable strategy according to the scores and weights given to the different criteria. The normalized decision matrix is shown in Table A.1 in the Appendix. The decision matrix and the weights drive the concordance and discordance matrices (Table 2 and Table 3, respectively).

[Table 2 here]

[Table 3 here]

Given these matrices, the aggregate dominance matrix (Table 4) and the mix evaluation value (Table 5) were deduced.

[Table 4 here]

[Table 5 here]

The mix evaluation value indicates that the best alternative is A7, and the sensitivity analysis shows the same result, providing robustness to this finding. This means that the best possible strategy for AdP in the future lies in maintaining the present institutional common services, empowering the philosophy of the Social Economy philosophy, and supporting territorial growth.

## 5. Conclusions

Our study provides evidence that the decision-making tools used in private companies can be useful in the Social Economy. This does not mean copying objectives, but rather about borrowing the tools that private companies employ to improve their competitiveness and maximize benefits, so that institutions in the Social Economy can use them to seek the benefit of the community and its social groups.

The Social Economy, like capitalist companies, operates in constantly shifting economic environment, which requires a continuous review of their actions to define a viable future. This was particularly true of the 2007 crisis, because entities within the Social Economy did not show as much countercyclical behavior as in other downturns (Jaén, 2017; Sala, Farré, & Torres, 2014; Sala-Ríos, Torres-Solé, & Farré-Perdiguer, 2018). We have highlighted the effects of the crisis on the Social Economy NMS, as well as this response to the first question raised. The figures indicate that the subsector suffered a credit crunch, as public funds fell, and a loss of employment at a time when there was an increasing need to meet most basic social demands. The subsistence of the institutions was largely linked to increases in user fees and/or collaborating entities, as well as the role of volunteers in providing the necessary services.

This scenario demonstrates that many of NMS entities need to refocus their organizational structures and redefine their strategies to become more flexible and resilient to economic shocks and the austerity policies that often follow such shocks. It is often said that decisions are like the engine of an organization, because the organization's future success largely depends on the selection of viable alternatives during the decision-making process (Reymen, Berends, Oudehand, & Stulti, 2017). It is on this point that we have answered the second question by proposing the ELECTRE II methodology, widely used by private companies in decision-making, as a rigorous and efficient option that, furthermore, fits with the democratic participative

process inherent to the philosophy of institutions within the Social Economy. ELECTRE II has been tested in many areas, particularly in companies that have sought to choose the alternative that improves profits to the greatest extent and/or creates the greatest reduction in costs. Our proposal, however, was about providing entities in the Social Economy with a tool that would enable them to move forward towards new organizational formulas, which would be more flexible and adjustable to recessions, and do so with the active involvement of the different agents within the entity's project.

Finally, we turn to our third question: to what extent can ELECTRE II be successfully implemented in NMS institutional decision-making? We have demonstrated that ELECTRE II works by applying it for a non-profit association named AdP, whose main goal is taking care of disabled people, although the institution also carries out other entrepreneurial activities and services. Using ELECTRE II, AdP was able to decide how to align its business activities, territorial growth, and Social Economy philosophy. This study has not gone into great detail about the wide strategic action plans, work lines, runtimes, resources, or environmental implications that hide in each alternative, and especially in the alternative chosen, because this would be beyond the scope of our research. However, we want to highlight that all alternatives were built on a model with greater adaptability and agility in the decision-making process than had been available in the pre-crisis period.

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Table 1 Criteria Weights

Criteria	Weights
C1	0.08
C2	0.03
C3	0.07
C4	0.08
C5	0.10
C6	0.09
C7	0.04
C8	0.06
C9	0.06
C10	0.10
C11	0.05
C12	0.09
C13	0.06
C14	0.03
C15	0.03
C16	0.03

Source: Own elaboration

Table 2 Concordance Matrix

	0.55	0.40	0.45	0.42	0.45	0.40	0.45
0.46		0.41	0.53	0.41	0.40	0.41	0.45
0.60	0.59		0.70	0.60	0.55	0.47	0.53
0.56	0.48	0.30		0.47	0.47	0.26	0.40
0.57	0.60	0.40	0.54		0.60	0.39	0.52
0.56	0.60	0.45	0.54	0.41		0.45	0.46
0.60	0.59	0.53	0.75	0.62	0.55		0.65
0.56	0.56	0.47	0.60	0.49	0.55	0.36	

Source: Own elaboration

Table 3 Discordance Matrix

	2.00	1.33	1.33	0.67	1.50	1.33	1.33
0.50		1.00	1.00	1.50	2.00	1.00	1.00
0.75	1.00		0.33	0.75	1.00	1.00	1.00
0.75	1.00	3.00		1.50	1.33	4.00	1.50
1.50	0.67	1.33	0.67		2.00	1.00	1.00
0.67	0.50	1.00	0.75	0.50		1.00	1.00
0.75	1.00	1.00	0.25	1.00	1.00		1.00
0.75	1.00	1.00	0.67	1.00	1.00	1.00	

Source: Own elaboration

**Table 4 Aggregate Dominance Matrix**

	0.91	0.88	0.90	0.91	0.89	0.88	0.90
0.92		0.90	0.93	0.88	0.85	0.90	0.91
0.96	0.95		0.99	0.96	0.94	0.91	0.93
0.94	0.92	0.69		0.90	0.90	0.00	0.88
0.93	0.96	0.88	0.94		0.93	0.89	0.93
0.94	0.96	0.91	0.94	0.91		0.91	0.91
0.96	0.95	0.93	1.00	0.96	0.94		0.97
0.94	0.94	0.91	0.96	0.92	0.94	0.88	

Source: Own elaboration

**Table 5 Mix Evaluation Value**

A1	0.8958
A2	0.8981
A3	0.9474
A4	0.7468
A5	0.9224
A6	0.9258
<b>A7</b>	<b>0.9566</b>
A8	0.9275

Source: Own elaboration

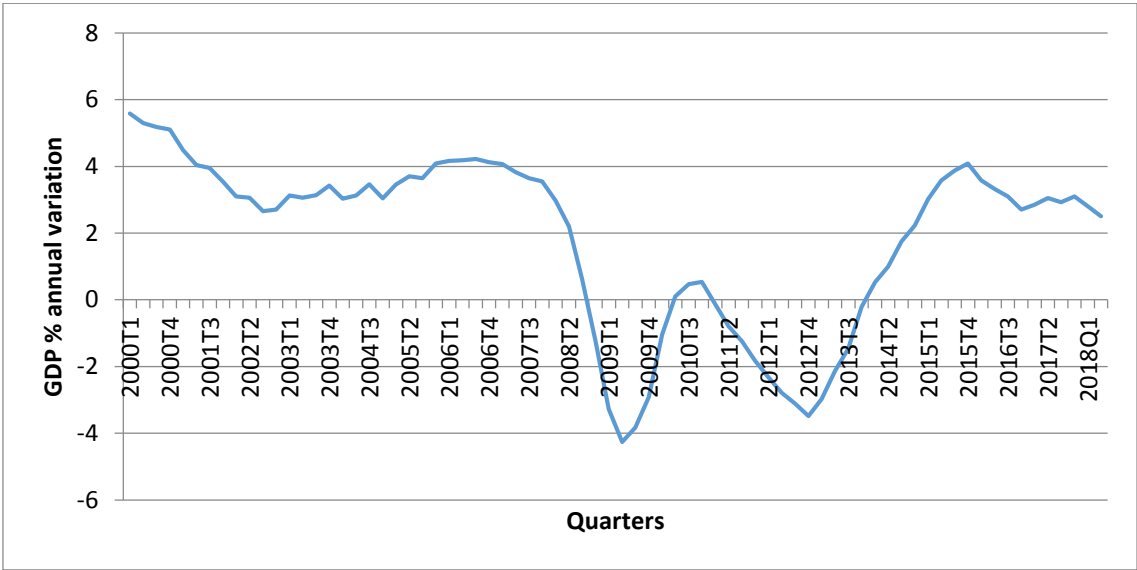
## Appendix

**Table A.1 Normalized Decision Matrix**

	Financial perspective					User perspective				Internal institutional perspective			Learning and Growth			
Alternatives/ Criteria	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15	C16
A1	0	0.2	0.8	0.8	0.6	0.4	0.4	0.6	0.4	0.2	0.4	0.6	0.8	0.6	0.8	0.4
A2	0.4	0.4	0.6	0.8	0.8	0.2	0.4	0.8	0.4	0.2	0.2	0.6	0.6	0.4	0.6	0.2
A3	0.4	0	0.2	0.2	0	1	0.8	0	1	1	1	1	0.6	0.8	1	0.8
A4	0.2	0.2	0.4	0.2	0	0.8	0.6	0.2	0.6	1	0.6	0.8	0.4	0.2	0.6	0.6
A5	0.2	0.2	0.8	0.8	0.4	0.4	0.4	0.6	0.6	0.6	0.8	0.6	0.8	0.6	0.2	0.4
A6	0.6	0.4	0.6	0.8	0.8	0.2	0.4	0.8	0.4	0.4	0.6	0.6	0.6	0.4	0.4	0.2
A7	0.4	0.2	0.4	0.6	0	1	0.8	0	0.8	1	1	0.8	0.6	1	0.8	1
A8	0.8	0.4	0.4	0.4	0.2	0.8	0.8	0.2	0.8	0.6	0.6	0.6	0.2	0.8	0.6	0.8

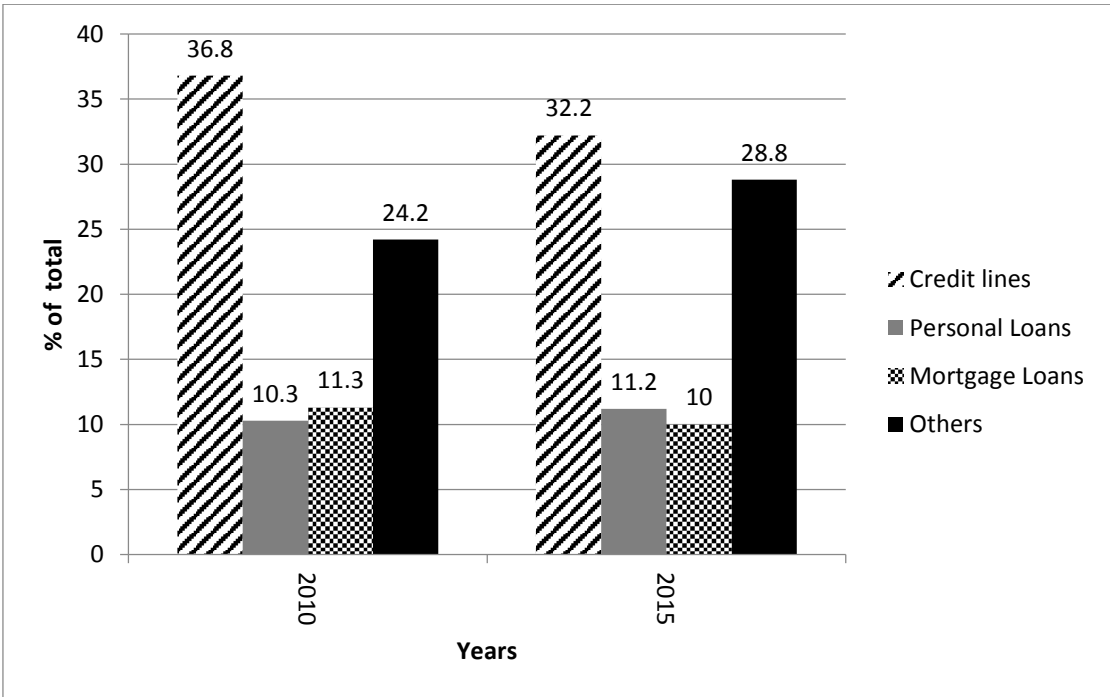
Source: Own elaboration

**Figure 1 Annual variation in GDP percentage**



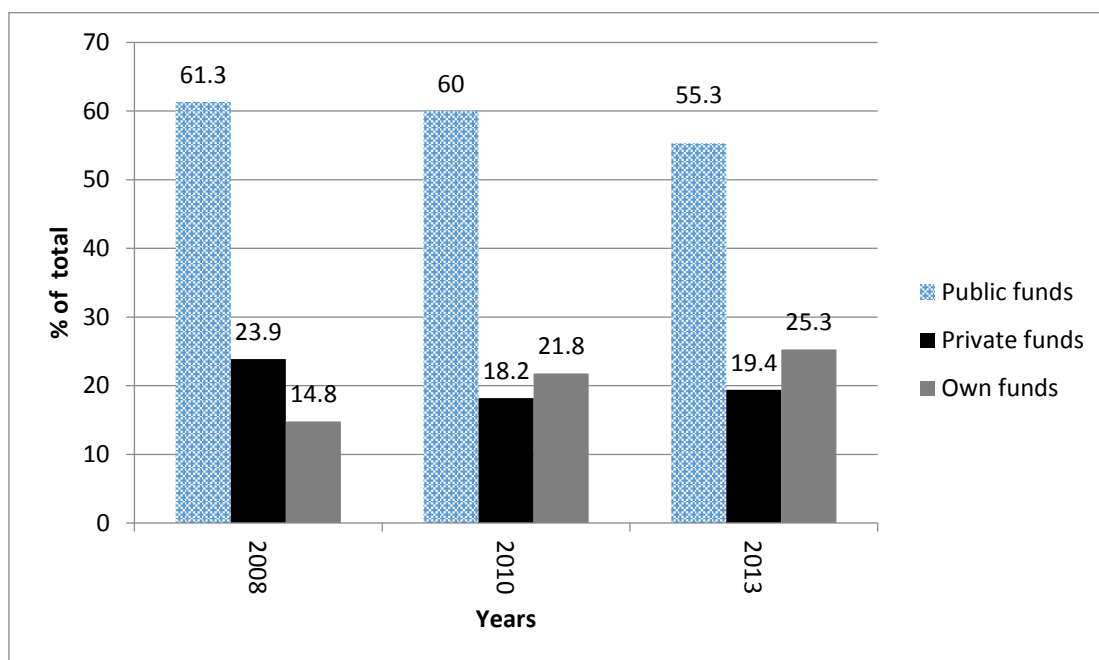
Source: Eurostat

**Figure 2 Share of entities that accessed bank financing**




Source: Plataforma ONG de Acción Social; Plataforma de Tercer Sector and eeaGrant, 2015

**Figure 3 Financing funds**



Source: Plataforma ONG de Acción Social; Plataforma de Tercer Sector and eeaGrant, 2015



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